

The Signal Report

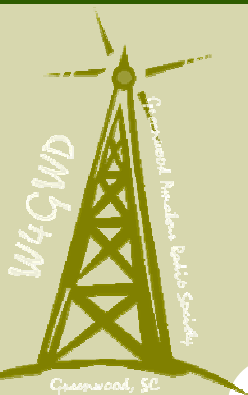
A Publication of the Greenwood Amateur Radio Society

VOLUME 5 ISSUE 5

MAY

[HTTP://WWW.W4GWD.ORG](http://www.w4gwd.org)

W4GWD@ARRL.NET



2009 CLUB

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K4GBH

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WW4I

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KI4WJO

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AI4WN

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W4DEW

Activities Manager/ Editor in Chief

Adam Shirley,
WJ4X

**The W4GWD
Repeater Network**
147.165+ t107.2
443.900+ t107.2
W4DEW/R
146.910- t123.0

May Meeting

G.A.R.S. will meet Monday, May 18, 2009, at the Turner House on Bailey Circle in Greenwood at 7pm for light refreshments and 7:30pm for the meeting. The club meetings are now listed in the Index Journal on page 2A each month under "Community Calendar" and meetings are also listed in Greenwood's Town Planner which is circulated to most homes in the area.

Field Day 2009



The Greenwood Amateur Radio Society is holding Field Day 2009 at the same location as last year, at the park in Ninety Six, June 27-28. We will operate the entire Field Day period on various bands using all different modes of operation. If you'd like to schedule a specific time to operate, let Adam, WJ4X know.

Project Work

The Greenwood Amateur Radio Society undertook a community service project to provide some building improvements to the Greenwood American Red Cross building. A privacy wall with a large window and passage door along with some storage areas in another part of the building were built. Buddy W4DEW, Joe K4GBH, David AJ4PU, Dan KK6AA, Roger KJ4EPL, Earl, KC4AXY, Steven KI4ZSY and Tedd AI4WN, who completed the project, report the construction and materials costs are well under the approved budget and everything was completed in a very safe and professional manner. This project is a much needed addition to the Red Cross office and is very much appreciated by the Red Cross staff. The Greenwood ARS VE Team is very appreciative of the use of the

Red Cross building for VEC examinations, which are given the first Tuesday of every even month. Greenwood ARS members are encouraged to become Red Cross Volunteers as it is a very rewarding experience.



You can contact Barbara Turnburke at the Greenwood American Red Cross by phone at 864.229.3102 for more information.

Upcoming Society Events

Chat N' Chew

Every Friday at 11:30am the members of the Greenwood Amateur Radio society meet at Ryan's Steak House, Bypass 25 NE, Greenwood.

Everyone is welcome to have lunch or sip your favorite beverage and chat for a while.
(Dutch treat).

June 2, 2009 VE Exam Session 7:00pm Greenwood Red Cross

GARS ARRL Volunteer Examiners (VE) Team will have an exam session 7:00pm Tuesday June 2nd at The American Red Cross Building, 520 Epting Avenue, Greenwood, SC 29646.

Weekly Net

Every Thursday night at 9pm on 147.165+, The Greenwood Amateur Radio Society holds the weekly 2 meter net. Help spread the word to check into the Net.

If you would like to fill in or be a backup net control please let Buddy Willis, W4DEW know.

Weekly Ladies Net

The GARS Weekly 2 Meter Female Amateur Radio Net began on Tuesday, January 8, 2008 at 8 PM on the GARS 2 Meter Repeater. This net will be held every Tuesday night at the same time.

All interested female amateurs are invited and encouraged to check in. Subjects of discussion will be anything of interest to women.

If you have any questions, please contact Jean (W4KKA) at 864-953-0004 or Jo (KC4UU) at 864-446-7187.

Congratulations

Happy Birthday!

Alice Taylor	KC4JWM	May 9
Roger Moore	KJ4EPL	Jun 3
Kevan Nason	N4XL	Jun 5
Edna Elledge		Jun 9
Adam Shirley	WJ4X	Jun 15
Beth Yoder		Jun 21
Diantha Litwer		Jun 24

Happy Anniversary!

David (KJ4BWG) and Margret (KJ4HDK) Haynes	May 14
Earl (KC4AXY) and Betty Jean Powell	Jun 5
Tedd (AI4WN) and Gail Davidson	Jun 15
Joe (K4GBH) and Jewell (KI4WJO) Mimms	Jun 16

Missing Q signals #7695:

QKB?

- How many knobs does your rig have??

Classifieds

Cubic ST-2R 2KW antenna tuner \$350 obo, contact Jeremy Manning ki4ccz@gmail.com for additional info and photos.

For Sale or Offer for Entire Lot:

- | | |
|--|--|
| \$ 20.00 Rosy test center | \$ 5.00 Radio Shack 12 v power supply |
| \$ 20.00 Workman swr meter | \$ 5.00 Radio Shack 13.8 power supply |
| \$ 25.00 2 Ringo ranger antennas (parts missing) | \$ 20.00 Kenwood mike |
| \$ 25.00 CDE Rotor control box | \$ 20.00 Mirage pre-amp RCI |
| \$ 25.00 CDE Rotor control box | |
| \$ 30.00 three 2 meter antennas \$10.00 each | call or email |
| \$ 10.00 3 amp power supply 12 volt | Dewey "Buddy" Willis |
| \$ 20.00 VHF meter | W4DEW@arrl.net |
| | (864) 445-7574 home |
| | (864) 554-3543 verizon |

If anyone has any Ham radio stuff to sell or trade... list it in this column by calling Buddy, W4DEW, 864-445-7574, w4dew@arrl.net

We now have a Name!

Thanks to the many replies and suggestions for last month's call for creative help, we now have a name. I find it to be quite fitting and fun for our monthly newsletter. The winning name was submitted by David, W4MCC. Thanks David from all of us at "The Signal Report".

You're always 5 by 9 with "The Signal Report" -Ed

Club Corner

Quite a few club members attended the Upstate Hamfest held by the Blue Ridge Amateur Radio Society. A lot of fun was had by all who attended, and it seems everyone had a great time.

Roger, KJ4EPL, is rebuilding his ham station with some great equipment. Hopefully he'll be back on the air soon.

It's getting to be summertime, if you have work to be done, let someone know so we can organize a work day to help you out.

Tedd, AI4WN, is experimenting with ferrite balun design, and has some interesting ideas to investigate

Adam, WJ4X is toying with that hidden tag radiator as seen in CQ magazine.

A few GARS members are making net checks part of their daily operating habit. It's great hearing them take and pass traffic and participate in the National Traffic System.

Remember to support your local and special interest Amateur Radio Clubs!

Let us know what you're up to by sending an email to Adam, WJ4X@AMSAT.ORG

CQ Test with N4XL

There is much to talk about when it comes to maximizing the capability of your receiver to perform at its best in a contest environment and we won't finish this month. I do not by any means consider myself a knowledgeable technician and have gained what little knowledge I have by reading books and surfing the internet. I recommend you do the same. The February and March 2001 issues of QST had an excellent article by Larry Scheff, W4QEJ, titled "How to Maximize Your Receiver's Effective Selectivity". ON4UN's Low-Band DXing is also an excellent reference for anyone interested in DXing or contesting. I have read and reread the section on Receiving and Transmitting equipment and have improved my ability to pull out the weak ones by doing so. I will try to pass along some of what I've learned in as non-technical a fashion as I can over the next couple of articles. As is normal for me, I'll concentrate on SSB.

Let's first talk about what we're trying to do – receive a fairly weak RF signal on a crowded band with a lot of strong stations running 1.5+ Kw. Your rig would love nothing more than to have just one signal on the band to receive. Multiple signals, especially strong ones nearby your frequency, tend to mix together in the receive amplifiers and cause reception problems like front end overload, AGC (Automatic Gain Control) pumping, and IMD (Intermodulation Distortion). What tools does your radio have to help you combat these unwanted strong signals? A typical rig will have filters, RF gain, AF gain, a notch filter and audio DSP. Don't forget the main tuning knob and preamplifier either. You may even have IF DSP, selectable roofing filters, pre-selectors, attenuators, and pass band tuning in your radio. Your goal is to block those strong unwanted stations. When do you use what?

The first thing that comes to mind is filters. They're your best tool to fight QRM. Most receivers have at least two IF's (Intermediate Frequencies) in them which are used to convert the radio signal to an audio signal. The 1st IF is typically 9 MHz and the 2nd is 455 KHz. Some have three IF's and first up convert the signal to 70 MHz before going back down to 9 MHz. It's only been in the last couple of years that filters for 70 MHz could be built so most radios do not allow a filter at that high a frequency. Your options will likely be putting a filter in the 9 MHz IF or the 455 KHz IF. Filters work best if they are put as close to the antenna port as possible (not physically close, but electrically close when the radio

is designed). That means if you can only afford one filter, put it in the 1st IF (9 MHz) slot instead of the 2nd IF (455 KHz) slot. If you can afford both then by all means put a filter in each IF. If you have two they will work together to dramatically reduce QRM beyond what a single filter can do.

Filters are typically rated by their bandwidth (2.8 KHz, 2.1 KHz, or 1.8 KHz for example) and it's shape factor. A typical SSB signal is 3 KHz wide but you really don't need that much bandwidth to communicate. Having a filter with a 2.0 or 1.8 KHz bandwidth allows you to filter out a lot of interference and still exchange information. I have 1.8 KHz filters in two of my IF filter slots. They work great. Shape factor is also critical to performance. This has to do with how quickly a filter attenuates unwanted signals as you move away from your listening frequency. The lower the shape factor number the better the selectivity is. See figures 1 and 2. Figure 1 has the better shape factor. All filters are not created equal. I have had both Icom and Yaesu factory filters and have ended up replacing them with filters from a company called International Radio (Inrad). Their filters have a better shape factor. I could easily tell the difference between them and the factory filters and recommend them. No, I am not affiliated with Inrad. I sold off the factory filters.

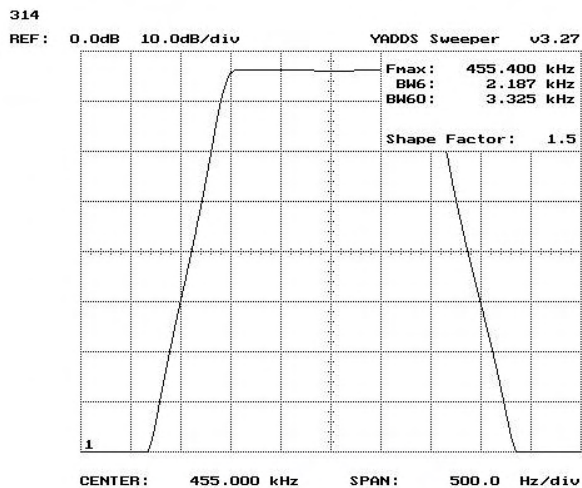


Fig. 1 - Typical filter response curve
(From International Radio)

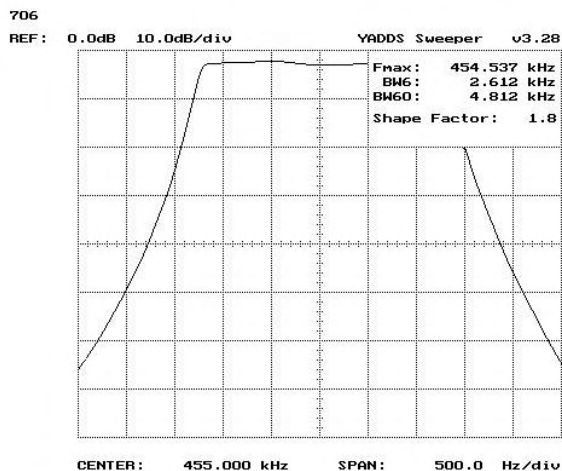


Fig. 2 - Typical filter response curve
(From International Radio)

I'll just touch briefly on roofing filters as most of you are probably stuck with whatever you have inside your radio. A roofing filter is the very first bandpass filter your radio has coming from your antenna connection. It is usually as wide as the entire ham band you select. Since we have general coverage receivers some roofing filters are even wider than that. Needless to say, there are often a LOT of strong stations – even broadcast stations – within the pass band of a wide roofing filter. Remember our goal was to stop strong adjacent signals from interfering with our listening frequency and that having a filter as close to the antenna is best? You may have heard old timers say that the modern solid state receivers aren't as good as the tube types of years ago. A primary reason they can truth-

fully say that is because the older radios didn't have wide roofing filters. They were ham band only and didn't need wide ones. A good contest radio will have a narrow roofing filter. Several top of the line rigs are now coming with optional selectable roofing filters. The narrower the better as long as you keep the bandwidth wide enough for the mode you're trying to operate in. I changed the roofing filter in my FT1000MP from 12 KHz to 4 KHz using a modification kit that Inrad sells. It helped me reduce interference from those strong stations that were more than 4 KHz away.

Some people think that because they have DSP they have the best filters around. Well, I and many others don't think so. The majority of DSP filters are in the second IF, or even just in the audio chain and not in the IF chain at all – and that is not close to the antenna connection where filters have the greatest impact. Most top of the line radios you and I can afford use a combination of crystal filters and DSP. Rigs are beginning to come on the market with DSP in the 1st IF, but they're still not the standard. I'm confident they'll get better with time.

Well, this article is long enough. I'll just wind up by saying that if you're on a crowded band and having trouble copying weak stations you should try turning your pre-amplifier off and maybe even reducing your RF gain. You'll most likely see an improvement. We'll talk a bit about why next time.

N4XL

Homebrew Challenge



If you want to see your article here, please send an email to the newsletter staff WJ4X@amsat.org

Ok, the time has come for entries into the W4GWD Homebrew Challenge. By now everyone who wishes to participate should have a good jump on their project, and be developing their ideas into workable, fun pieces of ham equipment!

What the judging committee needs from you is an idea of how many projects we have going on. So if you would, please email the newsletter staff with a short note to say "Hey I have a project" so we know how many

we are going to have to look at before the final round.

We do not need to know any other details about your project, just that you have one. We would rather you keep it a secret until time for us to look it over and see how it works!

Remember that you must have SAFETY in mind at all times and you need to document your project as well as you can so others can learn from you.

Your project should be complete

by the November GARS meeting and be ready for display there with a short 1-2 minute discussion on what you have done and how it works. If you need more time for a complex entry, we will have plenty of time for you.

The winner will be announced at the December GARS Christmas Party and selected by a group of highly trained secret agents of the Newsletter Staff.

More to Follow!

COMING HAMFESTS and EVENTS:

9 May 2009

Heart of Georgia Hamfest 2009
Middle GA Radio Assn.,
Central GA Radio Club, &
Byron Middle School ARC
<http://www.heartofgeorgiahamfest.com/>
Talk-In: 146.850 -600 (no tone required)
Contact: Larry Keith, KQ4B
231 Shenandoah Trail
Warner Robins, GA 31088-6289
Phone: 478-957-3734
Email: kq4b@arrl.net
Byron, GA
Byron Middle School
201 Linda Drive

6 Jun 2009

Georgia State Convention
Atlanta Radio Club
(W4DOC)
<http://www.atlantahamfest.com>
Talk-In: 146.820 (PL 146.2)
Contact: John Talipsky,
N3ACK
385 Madison Chase Drive
Lawrenceville, GA 30045
Phone: 678-618-2190
Fax: 678-985-2906
Email:
johnn3ack@comcast.net
Marietta, GA
Jim Miller Park
2245 Callaway Road

27-28 June 2009

ARRL Field Day
Greenwood Amateur Radio Society's Field Day will be held this year in the '96' park, in Ninety Six, South Carolina. Come on out and enjoy operating in a casual "contest" that demonstrates both emergency operating styles and quick rapid fire contacts. Many different modes and bands will be on display, including satellite and digital modes such as PSK 31.
Please contact Adam
WJ4X@amsat.org for more information!

25 Jul 2009

34th Annual Western Carolina Hamfest
Western Carolina Amateur Radio Society
<http://www.wcars.org/hamfest.html>
Talk-In: 146.910 (PL 91.5) & 147.390 (PL 94.8)
Contact: Dean Blair, K2JB
20 Coffey Place
Asheville, NC 28806
Phone: 828-423-3082
Fax: 828-670-9909
Email: k2jb@arrl.net
Waynesville, NC
Haywood County Fairgrounds
758 Crabtree Road (NC 209)

8 Aug 2009

Ellijay Amateur Radio Society (EARS)
<http://www.ngamtn.com/w4hhh/>
Talk-In: 145.170 -600 kHz (PL 100)
Contact: Dave Meadows,
K4LDI
401 Vanilla Lane
Ellijay, GA 30536
Phone: 706-276-4043
Fax: 706-276-4043 (call Dave first)
Email:
dmeadows@ellijay.com
Ellijay, GA
Ellijay Lions Club
1729 South Main Street

22-23 Aug 2009

West Virginia State Convention
West Virginia State Amateur Radio Council
<http://www.qsl.net/wvsarc>
Talk-In: 145.39 (Alt. 147.88)
Contact: Patrick Shea,
N8MIN
27 Jackson Street
Weston, WV 26452-1513
Phone: 304-269-3468
Fax: 304-427-2187
Email:
pshea@citynet.net
Jackson's Mill, WV
WVU Convention Center &
Jackson's Mill 4-H Center
Jackson's Mill Road

5-6 Sep. 2009

Shelby Amateur Radio Club
<http://www.shelbyhamfest.com>
Talk-In: 146.880(-) & 147.120(+)
Contact: Robby Hamrick
WA4RH
wa4rh@bellsouth.net
Dallas, NC
Gaston County Parks & Recreation Department
1301 Dallas Cherryville Highway

24 Oct 2009

Sumter "OPEN AIR" Hamfest
Sumter Amateur Radio Association
<http://www.geocities.com/CapeCanaveral/2695/sara.htm>
Talk-In: 147.015 (PL 156.7)
Contact: Carl Ecabert,
AA1MD
6105 Dubose Siding Road
Sumter, SC 29153
Email: aa1md@ftc-i.net
Sumter, SC
Sumter Jaycee Hut
314 Pine Street

**IF YOU WOULD LIKE YOUR HAMFEST OR
EVENT LISTED HERE, PLEASE CONTACT
ADAM, WJ4X@AMSAT.ORG**